

**COMMONWEALTH OF PUERTO RICO
PUBLIC SERVICE REGULATORY BOARD
PUERTO RICO ENERGY BUREAU**

NEPR

Received:

Apr 3, 2023

4:45 PM

IN RE:
LUMA'S RESPONSE TO HURRICANE
FIONA

CASE NO. NEPR-MI-2022-0003

**SUBJECT: Motion Submitting Tenth Update on
Stabilization Plan**

**MOTION SUBMITTING TENTH UPDATE ON STABILIZATION PLAN FOR
TEMPORARY EMERGENCY GENERATION CAPACITY**

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COME NOW LUMA Energy, LLC ("ManagementCo"), and **LUMA Energy ServCo, LLC** ("ServCo"), (jointly referred to as "LUMA"), and respectfully state the following:

1. In a Resolution and Order of October 7, 2022 ("October 7th Order") with the subject "Baseload Generation Dispatch Status-Post Hurricane Fiona," this honorable Puerto Rico Energy Bureau ("Energy Bureau") convened a Technical Conference to discuss concerns raised by LUMA in a letter dated October 6, 2022, regarding Resource Adequacy and potential Generation resource deficiencies following Hurricane Fiona. Per the October 7th Order, the topics to be discussed at the Technical Conference were "(i) Dispatch Status of the available Baseload Generation post Hurricane Fiona and (ii) the identified temporary emergency mitigation measures thought to address the generation deficiencies arising from Hurricane Fiona."¹

2. On October 12, 2022, the Energy Bureau entered a Resolution and Order whereby it ordered LUMA to develop a stabilization plan as a direct response to Hurricane Fiona, in coordination with the Federal Emergency Management Agency ("FEMA") and the Puerto Rico

¹ The Technical Conference was held as scheduled on October 11, 2022. During the Technical Conference, the Energy Bureau and consultants for the Energy Bureau posed questions to LUMA's representatives.

Electric Power Authority (“PREPA”) “to address any baseload generation inadequacy or shortfall that affects the dispatch availability and has the potential to cause load shedding or a blackout event of the electric system (“Stabilization Plan”)” (“October 12th Order”).

3. Per the October 12th Order, LUMA was directed to submit the 1st and the 15th day of each month from the notice of the Order, an updated report addressing the efforts conducted by LUMA to assure the completion of the Stabilization Plan.

4. On October 27th, 2022, the Energy Bureau issued a Resolution and Order whereby it set a technical conference for November 1, 2022 (“October 27th Order”) in connection with the first update on the Stabilization Plan. The Energy Bureau stated that it is particularly interested in “learning about the (1) U.S. Army Corps of Engineers (“USACE”) Generation Assessment underway, (2) Emergency Temporary Generation under a potential FEMA Public Assistance Emergency assignment that can expeditiously mitigate the impact of Hurricane Fiona, and (3) Replacement of Emergency Temporary Generation that seeks to phase out the temporary generation with permanent capacity, noting that this permanent capacity is consistent with the approved Integrated Resource Plan (“IRP”).” *See* October 27th Order at page 1.

5. As per the October 27th Order, the Technical Conference was held as scheduled on November 1st. LUMA representatives appeared to discuss the Stabilization Plan and answered questions by this Energy Bureau.

6. On October 31st, 2022, LUMA submitted the First Update on the Stabilization Plan.

7. On November 15, 2022, LUMA submitted a Second Update on the Stabilization Plan (“Second Update”). In addition, LUMA submitted supplemental information to the Second Update arising from a joint press conference of November 15th, 2022, where the Governor of Puerto Rico, the Hon. Pedro Pierluisi and the Federal Coordinator for the Federal Emergency

Management Agency (“FEMA”), Nancy Casper, announced that FEMA’s power stabilization initiative aims to install between 600 to 700 MW of temporary emergency generation capacity through the mobilization of power generation maritime barges and temporary land-based generators. *See Supplemental Submission to Second Update on Stabilization Plan to Inform of Announcement by the Puerto Rico Government and FEMA on Temporary Emergency Generation Capacity*, filed on November 15, 2022.

8. On December 1st, 2022, LUMA submitted the Third Update on the Stabilization Plan.

9. The most recent updates to the Stabilization Plan were filed on January 17, 2023 (Fifth Update); January 31, 2023 (Sixth Update); February 14, 2023 (Seventh Update); March 1, 2023 (Eight Update); and March 15th (Ninth Update).

10. In compliance with the October 12th Order, LUMA hereby submits as *Exhibit 1*, the Tenth Update on the Stabilization Plan (“Tenth Update”). The Tenth Update includes, among others, a summary of the status of Stabilization Plan with reference to the tasks performed in the past weeks in coordination with USACE, FEMA and PREPA, as well as a summary of LUMA’s internal efforts. As slides 3 through 7 of *Exhibit 1* show, construction activities continue, major equipment for Palo Seco arrived during the month of March, and a Gen 4 Trailer is expected on April 5th. Finally, the Tenth Update identifies current issues and concerns with generation availability and resource adequacy.

11. LUMA redacted portions of *Exhibit 1* and respectfully requests that those portions be kept confidential by this honorable Energy Bureau pursuant to the Energy Bureau’s Policy on Management of Confidential Information, CEPR-MI-2016-0009, issued on August 31, 2016, and partially amended on September 16, 2016 and in accordance with the confidential nature of the

December 20th closed Technical Conference. In compliance with this policy, LUMA will submit a Memorandum of Law in support of its request for confidentiality within the next 10 days.

WHEREFORE, LUMA respectfully requests that this Energy Bureau **take notice** of the aforementioned, **accept** the Tenth Update submitted as **Exhibit 1** to this Motion, and **deem** that LUMA complied with that portion of the October 12th Order that requires submission of bi-monthly updated reports on the Stabilization Plan.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 3rd day of April, 2023

I hereby certify that this motion was filed using the electronic filing system of this Energy Bureau. I also certify that copy of this motion will be notified to the Puerto Rico Electric Power Authority, through its attorney of record: jmarrero@diazvaz.law.



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Exhibit 1
Tenth Update on Stabilization Report



Generation Stabilization Plan Discussion

April 3, 2023

Agenda

- I. Executive Summary
- II. Construction Activities & Status
- III. Current Operations
- IV. Resource Adequacy Risk Analysis Summary



Executive Summary

Palo Seco:

USACE construction continues making significant progress

- Site pre-work is complete and continuous 24/7 construction began 3/22

Emergency gensets and major equipment arriving in Puerto Rico

- 5 of 7 gensets have arrived on site and currently being assembled
- 1 genset to arrive 4/5; and 1 spare genset to arrive in early May
- LNG Tank and Re-gas Skid arrived in Puerto Rico and are staged near PS site
- **EPA NO_x emissions compliance will be met using demineralized water injection technology – additional new equipment being procured now**
- **LUMA suggested the use of LUMA's control communication equipment inventory to improve schedule – Working with FEMA for approval**

Gensets arrive and unloaded at Puerto Rico on 3/16

San Juan:

FEMA Task Force, LUMA and PREPA are addressing existing limitations and constraints of placing emergency generation at the San Juan – Continue to verify site viability

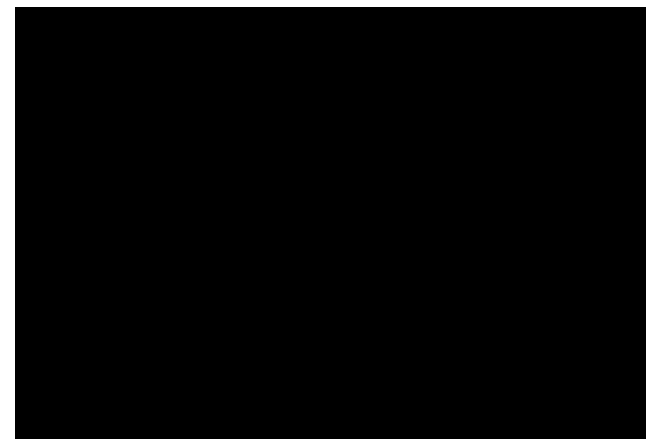
- Subject experts identifying technical solutions for equipment repair or replacement
- Senior staff at LUMA and PREPA are working to assign action item responsibilities and use of Shared Services



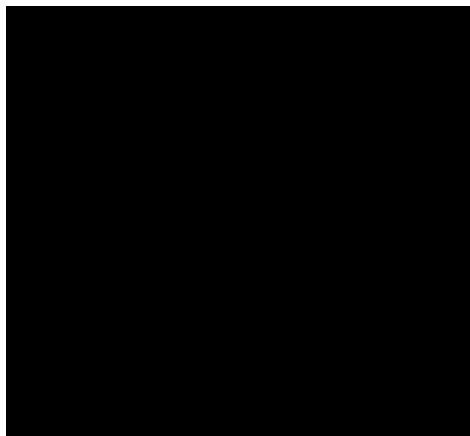
Active work at both primary sites

Palo Seco – Making progress on construction

- Received 5 gensets at San Juan port, delivered to site and being assembled
- New Fortress' subcontractor, PPG, is on site assembling gensets
- Ongoing installation of cable trays, trenching and foundations at site
- Began site installation of pre-fabricated diesel piping
- Installed perimeter and temporary lighting for continuous 24/7 construction
- Installed >100 pilings for LNG foundation
- Concrete forms are being set for the LNG pile caps, footings and pedestals
- LNG foundation construction and demineralized water equipment are critical path schedule items



*Driving piles in preparation for the
LNG foundation*



*An unused 300 MVA transformer is
being evaluated for use at the
San Juan site*

San Juan – Continuing to confirm interconnection viability of existing equipment

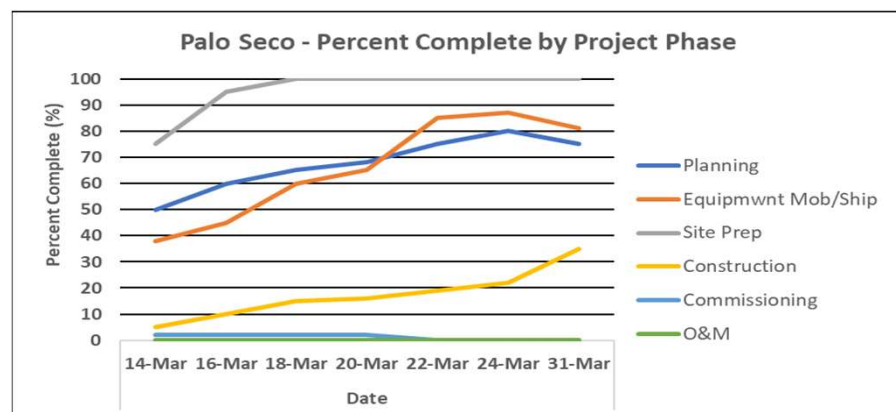
- LUMA completed the initial partial testing of the transformer, test results were good. PREPA will continue with the next steps regarding this option.
- The operation of existing equipment continues to be reviewed for safety
- No new generation installation has begun yet at San Juan
- FEMA is expecting to award the San Juan emergency generation installation contract in early-to-mid April, which is later than originally planned



Construction Activities - Progress Tracking by Phase, Palo Seco

24-Mar-23					
Phase	Activity	Start	Finish	% Complete	Overall % Complete
Planning	Submittals	1-Mar	31-Mar	85%	80%
	RFIs	1-Mar	23-Mar	85%	
	Incidental Design	1-Mar	15-Mar	60%	
Equipment Mob/Shipping	Power Generators	1-Mar	29-Mar	85%	87%
	LNG Facility	1-Mar	29-Mar	85%	
	Balance of Plant	1-Mar	24-Mar	90%	
Site Prep	Diesel Fuel Supply	1-Mar	15-Mar	100%	100%
	LNG Facility	1-Mar	23-Mar	100%	
	Power Generators	1-Mar	15-Mar	100%	
Construction	Diesel Fuel Supply	7-Mar	6-Apr	40%	22%
	LNG Facility	16-Mar	21-Apr	12%	
	Power Generators	7-Mar	6-Apr	28%	
Commissioning	Diesel Fuel Supply	8-Apr	14-Apr	0%	0%
	LNG Facility	22-Apr	24-Apr	0%	
	Power Generators	8-Apr	14-Apr	0%	
O&M		25-Apr		0%	0%

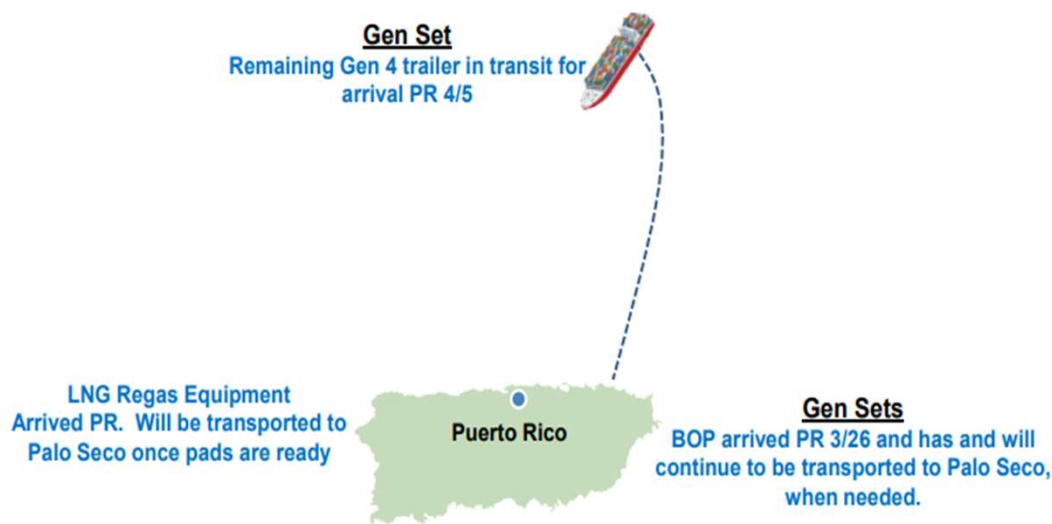
- Site preparation completed and construction well underway
- Planning continues to resolve incidental modifications that arise as the project progresses
- Expect 100% of major equipment and materials on site by 4/4/23
- Contractor (Weston) indicates there are no outstanding submittals that are suspending work.



- Graph trends show steady, rapid progress as a result of good project planning and efficient execution by construction teams
- Commissioning is not planned to start until 4/22
- O&M (baseload operations) will not begin until tested and verified by LUMA



Logistic Activities



Delivery of Major Equipment to PR

Palo Seco:

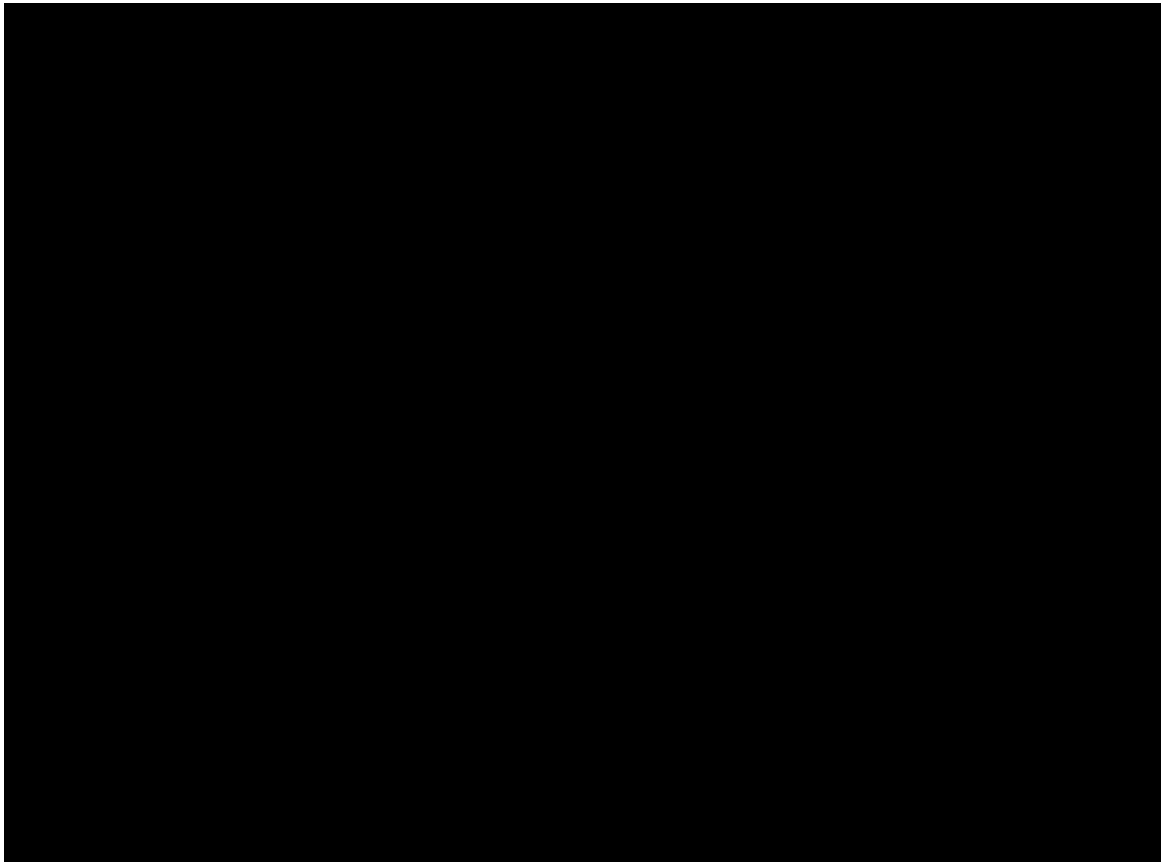
- **Six- primary GE TM 2500 GenSets**
 - ✓ 3 arrived on 3/17
 - ✓ 2 more arrive 3/27
 - 1 delayed, scheduled to arrive 4/5
- **One - spare GE TM 2500 GenSet**
 - 1 scheduled to arrive early-May
- **Balance of Plant equipment**
 - ✓ Arrived 3/26
 - ✓ 15kV Cables arrive 3/26
- **One - LNG Re-gas Tank & Skid**
 - ✓ Arrived in PR on 3/20

San Juan:

- **Expect generators on site: TBD**
 - Site testing and repairs are taking place, but the construction contract has not yet been awarded by FEMA



Palo Seco site - LNG Foundation Construction



Pile-driver crane in operation

Began pile-driving on 3/18 after test-piles were completed.

Pile driving was completed on 3/24 with >100 piles installed

A concrete slab-foundation over piles will require several concrete “pours” and a minimum of 7 cure-days before setting the LNG equipment

Concrete piles staged on site



Palo Seco site - Overview of site and area for new generation

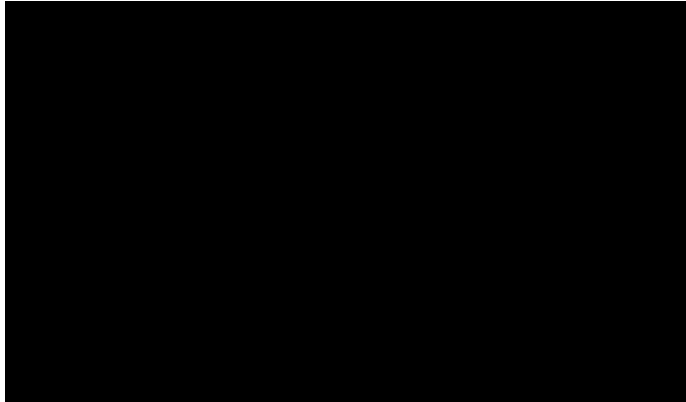


Dashed yellow outline shows an aerial view of the area where the generation units will be installed

Ground view of the compacted aggregate foundation ready for the Emergency Generators to be set – 3/18

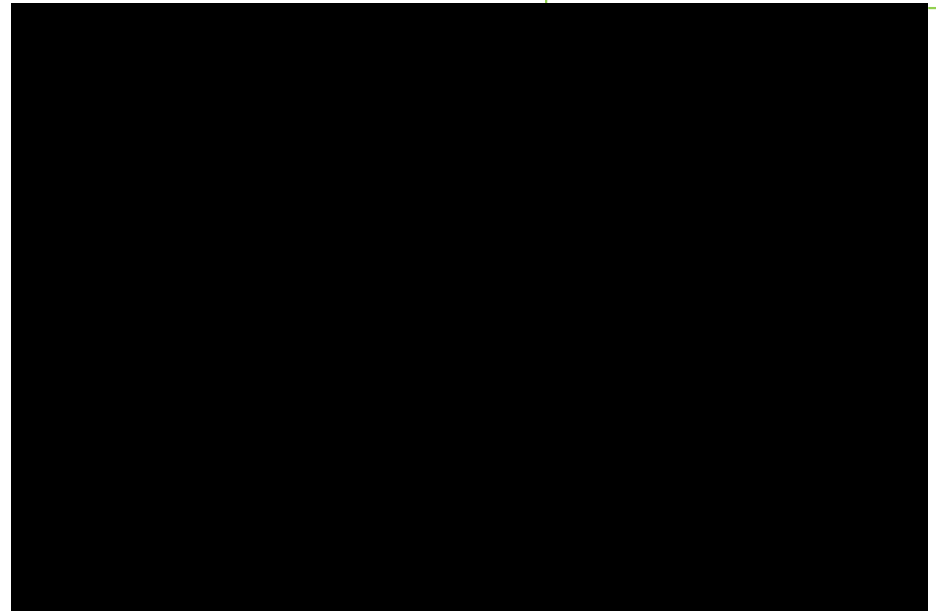


Palo Seco site – Generator Assembly and Placement



Gensets being assembled on site 3/23

Several gensets being placed on the designated foundations



Trenching for diesel fuel piping and power conduits to connect to Gensets

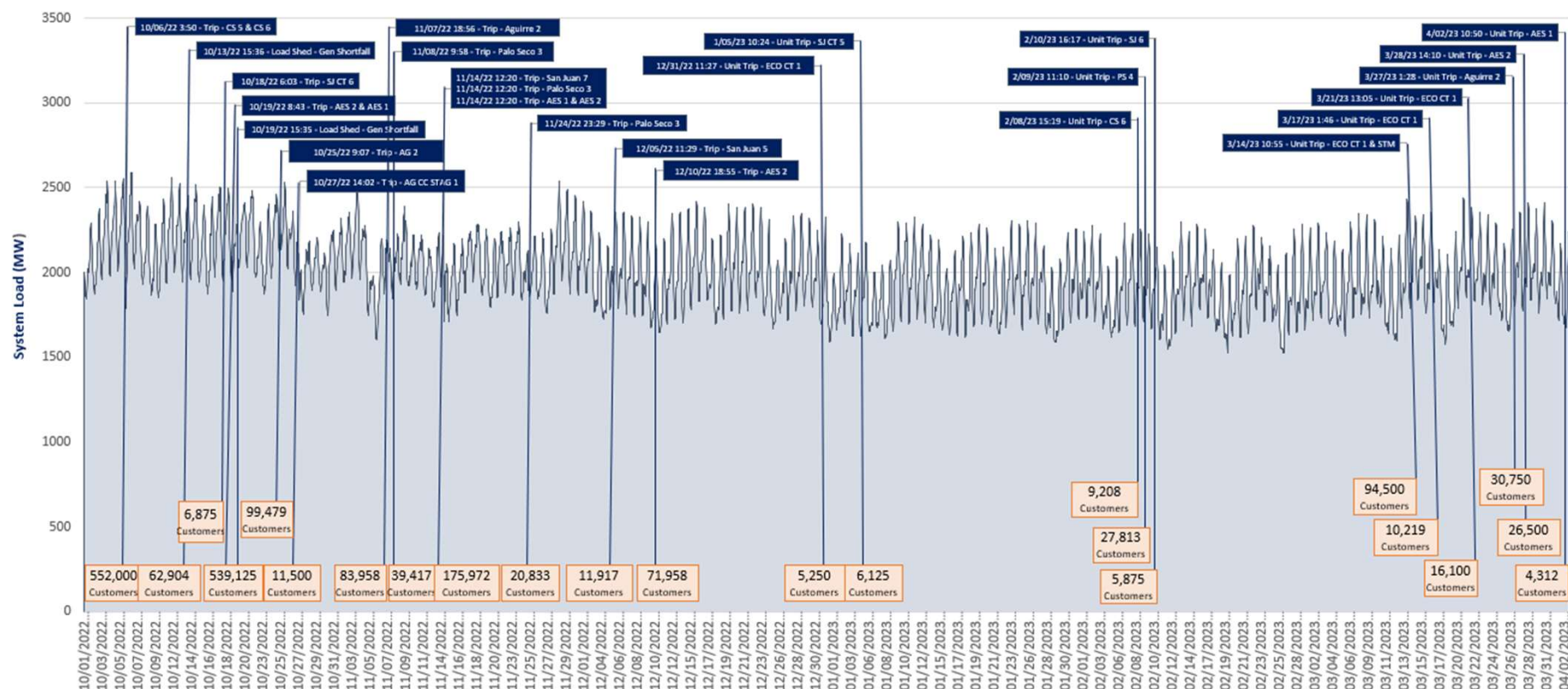
- *Over several days the equipment arrived in Puerto Rico, cleared Customs and arrived on site.*
- *Immediately the gensets are being placed, assembled and prepared to be connected*



Current Generation Operations – Load Shed Events

Generation Load Shed Events

Updated through 4/2/2023



- A total of five (5) load sheds have occurred since the last report on 3/15/23, including, one (1) in April
- There have been a total of twenty-four (24) load sheds since 10/1/22



Repeated changes to maintenance scheduling can impact the maintenance execution during the outage

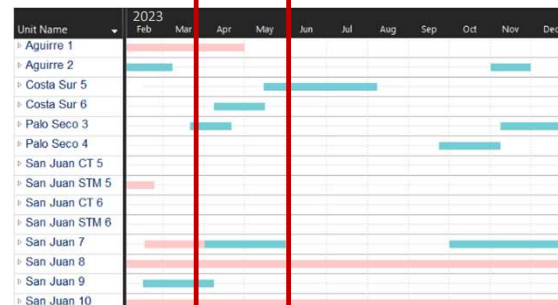
- PREPA's Planned Outage schedules have been extended or delayed thirty-four (34) times since October 2022.
- Five (5) additional schedule changes since 3/15/23
- The stacking of outages in April and May increases the likelihood of load sheds

Schedule Revisions	Aguirre 1	Aguirre 2	Costa Sur 5	Costa Sur 6	Palo Seco 3	Palo Seco 4	San Juan CT 5	San Juan STM 5	San Juan CT 6	San Juan STM 6	San Juan 7	San Juan 8	San Juan 9	San Juan 10
Baseline Rev. 10-26-22														
Rev. 10-28-22								Extend PO				Add OOS through 2023		Add OOS through 2023
Rev. 12-08-22	Extend FO duration	Move up FO start	Delay PO start	Move up PO start	Delay PO start	Extend PO	Delay PO start	Extend PO duration			Delay PO start			
Rev. 01-05-23		Delay PO start	Move up PO start	Shorten PO duration		Delay PO Start	Add PO in Dec 2023	Extend PO duration						
Rev. 01-17-23		Add PO in Nov 2023									Extend PO duration	Change OOS to FO		Change OOS to FO
Rev. 02-06-23									Add PO in 2024	Add PO in 2024				
Rev. 02-24-23	Extend FO duration to end of Apr 2023.				Move up PO start date from Apr 2023 to Mar 2023 and shorten duration. Add PO in Nov 2023.		Add PO in Mar 2023. Delay PO start from Dec 2023 to May 2024.	Change PO in Feb to FO and extend duration. Delay PO start from Dec 2023 to May 2024.						
Rev. 03-08-23		Extend PO duration												
Rev. 03-20-23			Delay PO of May 2023	Delay PO of Apr 2023	Delay PO of Mar 2023						Add FO in Feb 2023		Extend PO of Feb 2023	

Rev. 10-28-22, filed on November 1, 2022



Rev. 03-20-23



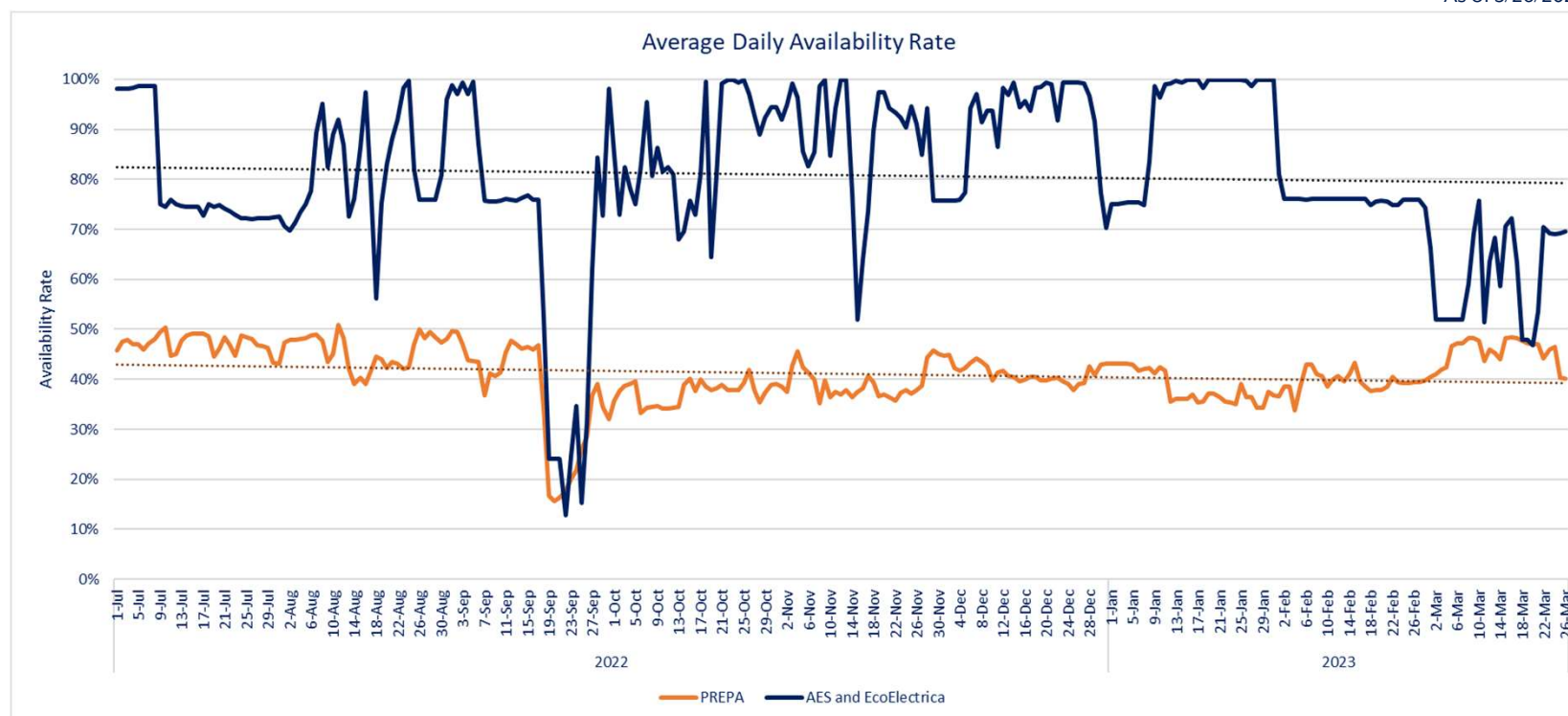
Forced Outages
Planned Outages

- The addition of the emergency generation will add baseload capacity and reduce the likelihood of load sheds



Availability of PREPA units continue trending lower

As of 3/26/2023



- Since July of 2022, the average daily availability trends of PREPA and AES & EcoEléctrica plants have trended downwards slightly.
- PREPA plants remains below 40%, as compared to its stated goal of 65%
- AES and EcoEléctrica have trended near 80% trend during the same period, with a recent dip in March.

